

Miscellaneous Organic NESHAP (MON)

40 CFR §63.2430-63.2550

Subpart FFFF

Promulgated: Nov 10 2003

Amended 3 times

Compliance date: May 10 2008

Presenter: Allison Zach, MACT Coordinator, 9/23/08



Outline

- ☛ Applicability
- ☛ Compliance Dates
- ☛ Process Vent Provisions
- ☛ Storage Tank Provisions
- ☛ Transfer Operation Provisions
- ☛ Wastewater Provisions
- ☛ Equipment Leaks
- ☛ Compliance: Monitoring, Reporting and Recordkeeping

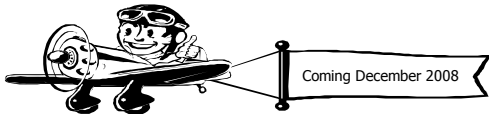
Applicability (§63.2435)

Must Meet All 4:

1. The Facility is Major for HAPs
2. Misc. Organic Chemical Manufacturing
Process Unit (MCPU), with associated equipment, that is used to produce any material or family of materials identified in the MON
3. The MCPU processes, uses or generates organic HAP
4. The MCPU is not subject to another MACT Standard
 - Exception: Batch process vents at HON Facilities are subject to the MON vent requirements.

MON affecting Minor HAP Sources

- Proposal will likely be out December 2008
- Affects minor source ethanol and polymer facilities



Exemptions



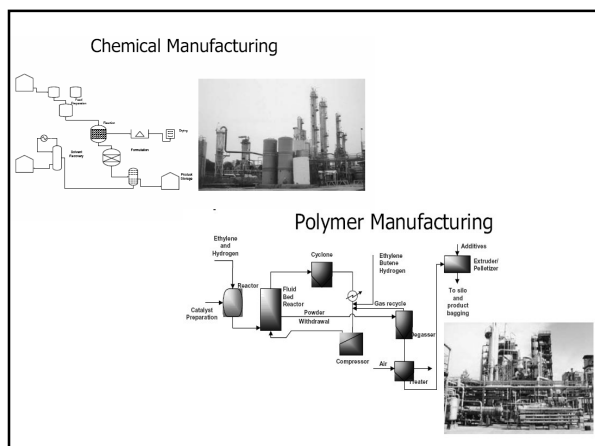
- NAICS Exceptions include:
 - 325131- Inorganic Dyes
 - 325181- Alkalis and Chlorine
 - 325188- All Basic Inorganics
 - 325314- Fertilizer (Mixing)
 - 325991- Custom Compounding of Pigments
 - 325992- Photographic film and paper
- Research and Development
- Ammonium sulfate as by-product
- Tall Oil Recovery systems
- Fabricating Operations

Exemptions Continued...

- The MON Doesn't Apply to:
 - Fabricating operations
 - Compounding operations
 - Extrusion and drawing operations



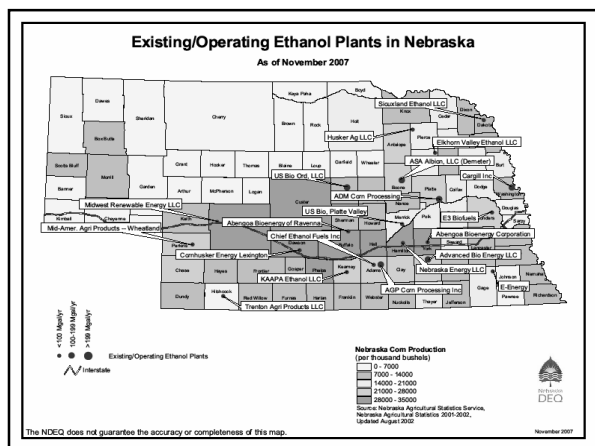
* Operation is not exempt if it involves processing with HAP solvent or if an intended purpose of the operation is to remove residual HAP monomer



Small scale, batch manufacturers to

SOCMI facilities

Synthetic Organic Chemical Manufacturing Industry



Manufacturing Types that May be Affected by this Rule:

Production of the Following Products:

| | |
|--|---------------------------------|
| Alkyd Resins | Phthalate Plasticizers |
| Ammonium Sulfate | Polyester Resins |
| Benzyltrimethylammonium Chloride | Polymerized Vinylidene Chloride |
| Carbonyl Sulfide | Polymethyl Methacrylate Resins |
| Chelating Agents | Polyvinyl Acetate Emulsions |
| Chlorinated Paraffins | Polyvinyl Alcohol |
| Ethylidene Norbornene | Polyvinyl Butyral |
| Explosives | Quaternary Ammonium Comp. |
| Hydrazine | Rubber Chemicals |
| Maleic Anhydride Copolymers | Symmetrical Tetrachloropyridine |
| Manufacture of Paints, Coatings, & Adhesives | |
| OBPA/1, 3-diisocyanate | |
| Photographic Chemicals | |

Misc. Organic Chemical Manufacturing Process Units (MCPU)

- An MCPU includes equipment that:
 - Produce a material or family of materials subject to this subpart
 - including organic chemicals (identified in 1987 SIC and 1997 NAICS codes in the rule)
 - Quaternary ammonium compounds and ammonium sulfate produced with caprolactum
 - Hydrazine
 - Organic solvents (from specific SIC codes) recovered using nondedicated solvent recovery operations.

Misc. Organic Chemical Manufacturing Process Unit (MCPU)

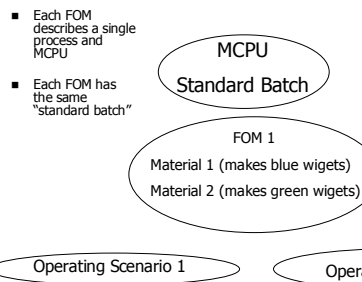
- The MCPU must produce Organic Chemical(s) classified under any of these:
 - SIC Codes: 282 through 287, 289, or 386
 - NAICS Code: 325
 - (Except: 325131, 325181, 325188, 325314, 325991, 325992)

This specifically includes hydrazine, reformulating plastics resins from recycled plastics products, and photographic chemicals.

Family of Materials

- Grouping of materials with the same basic composition or the same basic end use
AND
- Manufacture of materials use the same basic feedstocks with essentially identical:
 - HAP emission profiles and;
 - manufacturing equipment configuration.
- Example: Different color of same product.

EXAMPLE: FAMILY OF MATERIALS (FOM)



What is an MCPU?

- Misc. Organic Chemical Manufacturing Process Unit
- Equipment necessary to operate a misc. organic chemical manufacturing process and associated equipment
- Includes:
 - The process
 - Storage tanks
 - Product transfer racks
 - Liquid streams in open systems (water recovered from process or wastewater)
 - Fugitive components

Definition- Affected Source

- Facility wide collection of MCPUs and equipment associated with manufacturing a listed material, family of materials, or isolated intermediate
- Includes:
 - The MCPUs (Misc. Organic Chemical Manufacturing Process Unit)
 - Heat exchange systems (ex. cooling towers)
 - Wastewater and waste management units

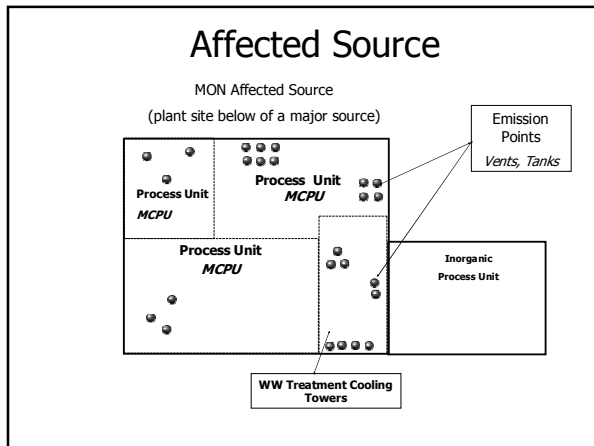
Isolated Intermediate

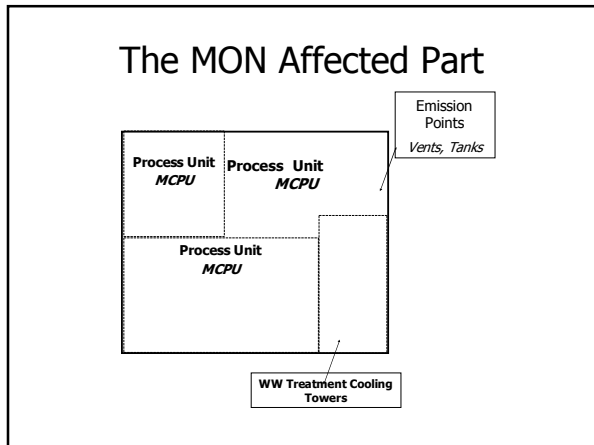
- A product of the process that is stored
- It marks the end of the process
- Storage reflects long term, not a batch cycle

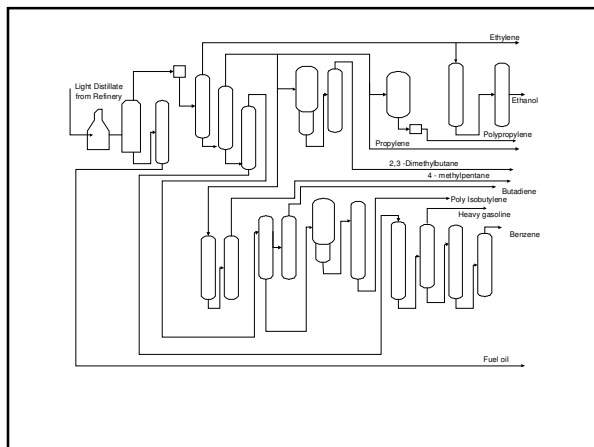
Emission Points

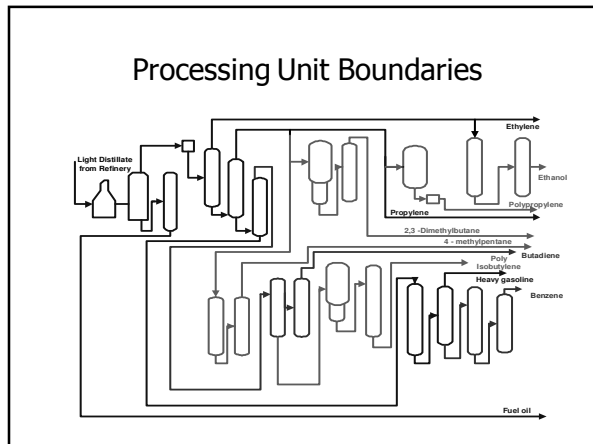
- Emission points identified from the MCPU production include:
 - Process vents
 - Storage tanks
 - Equipments leaks
 - Transfer operations
 - Wastewater collection and treatment systems

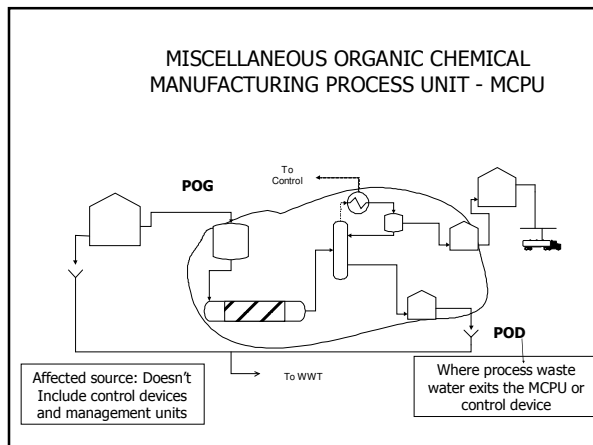












See Flow Charts 1 and 2

They contain guidance on identifying FFFF affected sources

SIMILARITIES WITH HON

- HON (Hazardous Organic NESHAP)
 - Regulates Synthetic Organic Chemical Manufacturing Industries (F, G, H, I)
- MCPU – Similar to HON CPU
- Isolated intermediate is end of MCPU (MON)
- Groups 1 and 2 exist but applicability thresholds different
- Emission Averaging - same as HON
- In the HON control devices are included in the MCPU but not in the MON

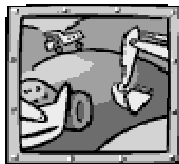
FLEXIBLE OPERATIONS

- Non-dedicated equipment
 - Multiple products can be manufactured in the same equipment
- **Non-dedicated equipment making up an MCPU** must perform a primary product determination
- MON applicability is based on the primary product determination
- Primary Product Determination Based on:
 - Sum of product types
 - Expected utilization for first 5 years after promulgation date
 - Redetermination required if process changes

Process Unit Groups (PUG)

- Facilities can elect to develop Process Unit Groups (PUG) (40 CFR 63.2535 L)
 - If the MCPU is made up of non-dedicated equipment
 - Must have shared processing equipment
- Then follow the compliance requirements in (40 CFR 63.2535 L 3)
 - Option for subparts GGG, MMM, and FFFF

Definitions for New and Existing Sources



New vs. Existing Source

■ New or Reconstructed Source

- Commenced construction or reconstruction of an affected source after April 4, 2002
- Commenced construction or reconstruction of a dedicated (used for 1 process) MCPU that is a major source in itself after April 4, 2002
- See 63.2, General Provisions, for definition of reconstruction

■ Existing Source

- Not new or reconstructed

Construction Definition

- Onsite fabrication, erection or installation of an affected source or MCPU
- Doesn't include addition of new equipment to an existing MCPU

Reconstruction Definition

- Replacement of components of an affected source to such an extent that:
 - Fixed capital cost of new components >50% of the fixed capital cost to construction a comparable new source,
AND
 - It is technologically and economically feasible to meet the MACT standards

Example #1

| <u>If</u> | <u>Then</u> |
|--|--|
| An affected source adds new equipment to existing MCPU | New source standards do not apply if the new equipment doesn't constitute reconstruction of dedicated MCPU or facility-wide source |

Example #2

| <u>If</u> | <u>Then</u> |
|--|---|
| An affected source adds new equipment to create a new MCPU | New source standards do not apply if no reconstruction of facility-wide source or construction of a dedicated MCPU that is major for HAPs |

Example #3

If

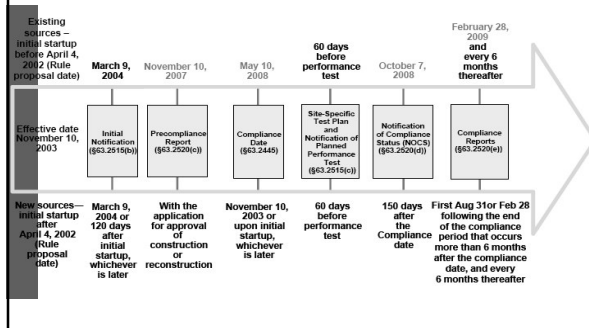
A major HAP source adds new equipment and begins producing a MON chemical for the first time at the facility

Then

The facility becomes a new affected source. Any process changes and additions are also subject to new source standards.

Compliance Dates

Compliance Timeline



Compliance Dates

- Existing sources AND
- Equipment added before the compliance date:
 - Comply no later than May 10, 2008
- New/Reconstructed Sources:
 - Comply upon startup or November 10, 2003 whichever is later.

Compliance Requirements for Sources that Become Major for HAP



What happens when a source becomes major?

- If an existing source was minor for HAP and becomes major for HAP and subject to the MON
 - The facility has 3 years to come into compliance with the MON

Testing Requirements

- If a Group 2 emission point (EP) becomes a Group 1 EP after the compliance date
 - Must immediately comply with Group 1 requirements
 - Must complete an initial compliance demonstration within 150 days

Control Device Increase Requirements

- If you have a **small control device**, from process vent or transfer rack, that becomes a **large control device** (controls ≥ 10 tons/yr HAP) after the compliance date
 - you must comply with monitoring and associated recordkeeping and reporting requirements for large control devices beginning on the date the switch occurs.
 - An initial compliance demonstration as specified in this subpart must be conducted within 150 days after the switch occurs.

Process Vent Hydrogen Halide and Halogen HAP Emission Increases

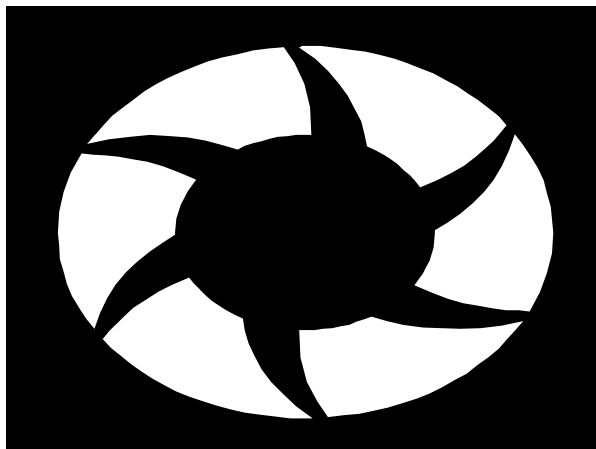
- If hydrogen halide and halogen HAP emissions from affected process vents increase to more than 1,000 lb/yr, or HAP metals emissions from a process at a new affected source increase to more than 150 lb/yr:
 - You must comply with the applicable emission limits specified in Table 3 and the associated compliance requirements beginning on the date the emissions exceed the applicable threshold.
 - An initial compliance demonstration as specified in this subpart must be conducted within 150 days after the switch occurs.

Compliance

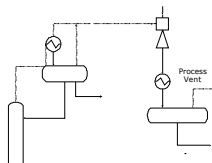
- Standards for:
 - Process vents
 - Storage tanks
 - Transfer operations
 - Wastewater
 - Equipment leaks
 - Heat exchange systems

Initial Compliance Overview

- Determine Group Status, or designate as Group 1
- Group 1 vs. Group 2
 - Must determine Group status for Batch and Continuous Vents to determine control requirements.
 - Group 1 require controls



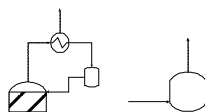
2 Types of Process Vents



Continuous Vents

defined as in the HON –

Some portion of the gas flow must **originate from continuous distillation, air oxidation reaction or reaction.**



Batch Vents

anything not defined as a: continuous vent, a storage tank, wastewater tank, bottoms receiver or surge control vessel.

Continuous Process Vent Definition

- The point of discharge from to the atmosphere (or the point of entry into a control device, if any) of a gas stream if the gas stream has the characteristics specified in 63.107(i) (HON).
- 63.107 States:
 - (b) Some, or all, of the gas stream originates as a continuous flow from an air oxidation reactor, distillation unit, or reactor during operation of the chemical manufacturing process unit.
 - Batch fermentation at ethanol plants often have continuous process vents.
 - Nebraska currently has 16 operating batch ethanol plants

Batch Process Definition

- Anything not defined as a continuous process vent
- A vent through which a HAP-containing gas stream is, or has the potential to be released to the atmosphere
 - From a unit operation, or
 - From multiple unit operations within a process that are manifolded together into a common header.
 - **Examples:** vents on condensers used for product recovery, reactors, filters, centrifuges, and process tanks.
 - **Continuous fermentation ethanol facilities** commonly have Batch Process Vents on the fermentation.
 - Nebraska currently has 5 operating continuous ethanol plants

PROCESS VENTS

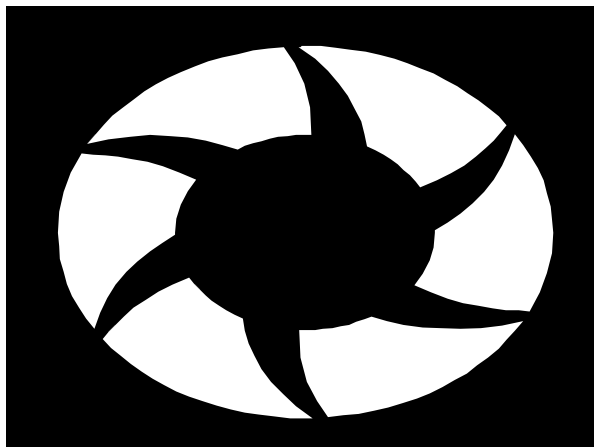
BATCH VERSUS CONTINUOUS VENTS

- **Batch:** >50 ppmv HAP and >200 lb/yr HAP
- **Continuous:** >50 ppm/wt HAP



Alternate Standards

- Alternate options for batch and continuous process vents, and/or storage vents.
 - (not popular with industry because of requirements below)
- Requires reduction of HCl, HF, Cl₂ and/or HAP by specific amounts for combustion and non-combustion devices
- **Either option requires:**
 - a CEMS
 - a performance evaluation of the CEMS
 - Report of deviation >20ppm
 - Record 15 min values



Continuous Process Vent Definition

– Point of discharge to the atmosphere or point of entry into a control device with the following characteristics:

- Some or all originates as a continuous flow from any continuous operation
- Contains > 0.005 wt% total HAP (50 ppm/wt)

Continuous Process Vents Definition Continued...

- The gas stream is in the gas phase from the point of origin at the air oxidation reactor, distillation unit, or reactor to the point of discharge to the atmosphere (or to the point of entry into a control device if any)
- The gas stream is discharged to the atmosphere either on-site, off-site, or both
- Cannot deliberately interrupt, temporarily liquefy, or route through any item of equipment for no process purpose to avoid applicability.

Nebraska Ethanol Plants

- Most of the Nebraska Ethanol plants have Batch Fermentation
 - This equates in most cases to having Continuous Process Vents

What is NOT a Continuous Process Vent

- A gas stream transferred for fuel value (i.e. net positive heating value) use, reuse, or for sale for fuel value, use or reuse
- Vents from storage vessels, transfer operations, waste management units
- Analyzer vents

What is NOT a Continuous Process Vent

- Relief valve discharge
- Leaks from equipment subject to LDAR program
- A gas stream going to a fuel gas system (heaters & boilers that use net heating value to run the systems)
- A gas stream exiting a MON vent control device
- A gas stream transferred to other processes (on-site or off-site) for reaction or other use in another process

Total Resource Effectiveness (TRE) index

- Index used to determine if a Continuous vent is Group 1.
 - TRE index is a measure of the supplemental total resource requirement per unit reduction of total organic compound (TOC) associated with an individual air oxidation vent stream,
 - Based on vent stream flow rate, emission rate of TOC, net heating value, and corrosion properties (whether or not the stream is halogenated) as quantified by the equation given under 40 CFR 60.614(e).

Continuous Process Vents

Total Resource Effectiveness Index Value

$$TRE = (1/E_{HAP}) * [a + b(Q_s) + c(H_T) + d(E_{TOC})]$$

Where: EHAP-hourly HAP emission rate
Qs-vent stream flow rate
HT-vent stream net heating value
ETOC-emission rate of TOC
a, b, c, and d are constants (given in the rule
different values for new and existing sources)

Continuous Vent Group 1 Applicability

- At existing sources
 - TRE < 1.9
- At new or reconstructed sources
 - TRE < 5.0
- Follow requirements in §63.982(e) if TRE meets the Group 1 threshold using a recovery device (Subpart SS)

Continuous Vent Control Options

- Comply with one of the following options:
 - A Flare
 - Reduce HAP emissions by ≥ 98% by weight (test inlet/outlet)
 - Reduce to an outlet organic HAP or TOC
Concentration of ≤ 20 ppmv (test outlet only)
 - Use a recovery device to achieve and maintain TRE > 1.9 for existing sources and > 5.0 for new and reconstructed sources
 - Use an exempt control device (see next slide)

Exempt Control Devices

- Hazardous waste incinerator (permitted under part 270, complies with part 264, or has certified compliance with the interim status requirements of part 265, Subpart H)
- Boiler or process heater with a design heat input capacity of ≥ 44 MW
- Boiler or process heater into which the vent stream is introduced with the primary fuel or is used as the primary fuel
- Boiler or process heater burning hazardous waste (permitted under part 270, complies with part 266, or has certified compliance with the interim status requirements of part 266, Subpart H)

Exempt Control Devices

- The MON requires no additional
 - Performance testing
 - Design evaluation
 - Monitoring
 - Recordkeeping
 - Reporting

Group 1 Emissions Vented to an APCD

- Performance test, design evaluation, or calculate controlled emissions
- Establish operating limits for parameter monitoring

Group 2 Applicability

Flow Rate ≥ 0.005 scmm.

AND

50 ppmv HAP

AND

not Group 1

No Controls Required

Continuous Process Vents

- At an existing source, if continuous process vent has TRE > 1.9 but ≤ 5.0

- Maintain TRE > 1.9 and demonstrate by monitoring parameters continuously and test

- At a new or reconstructed source, if continuous process vent has TRE > 5.0 but ≤ 8.0

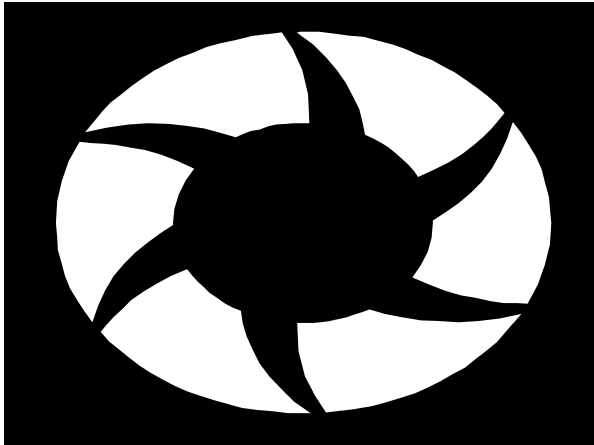
- Maintain TRE > 5.0 and demonstrate by monitoring parameters continuously

Can a Scrubber be a Recovery Device for the MON?

- A scrubber that is required as a control device for BACT **can be** considered a recovery device for the MON
- This would allow the TRE to be calculated after the scrubber since it is considered a recovery device

Guidance

- Memo by Clark has more information on compliance with these vent requirements at Nebraska ethanol plants



Batch Process Vent

- Definition: A vent through which a HAP-containing gas stream is, or has the potential to be released to the atmosphere
 - From a unit operation, or
 - From multiple unit operations within a process that are manifolded together into a common header.
- **Continuous ethanol plants have batch process vents-**
there are 6 Nebraska plants currently operating
- Examples:
 - Vents on product recovery condensers
 - Reactors
 - Filters
 - Centrifuges
 - Process Tanks

What is not a Batch Vent?

- Continuous Vent
 - Air oxidation reactor
 - Distillation unit
 - Other reactor
- Surge Control Vessel – Immediately preceding a continuous reactor, air-oxidation reactor, or distillation unit.
- Bottoms Receiver – Following a continuous distillation unit.
- Vents on storage tanks, wastewater sources and equipment leaks.
- Vents containing < 50 ppmv or < 200 lb/yr HAP.

Batch Process Vent Groups

- Group 1 :
 - **Batch:**
 - Annual uncontrolled emission of organic HAP, before a control device, from the sum of all batch vents within the process:
 - Existing: $\geq 10,000$ lbs/yr
 - New and Reconstructed: ≥ 3000 lb/yr
- Group 2 :
 - No controls are required if below the above limits as calculated on a rolling 365-day basis.

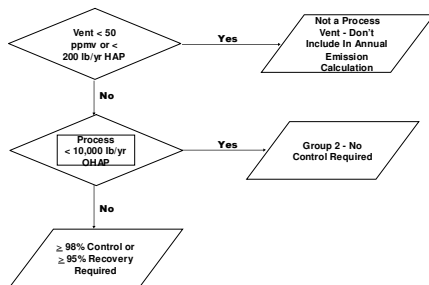
DETERMINING BATCH VENT UNCONTROLLED EMISSIONS

- Calculate Based Upon Pharma MACT Equations
Calculation specified in 40 CFR 63.1257(d)(2);;
Or
- Request Use of Engineering Assessment;
Or
- Designate as Group 1 if:
 - Complying with Alternative Standard, Or
 - All Group 1 Batch Process Vents are Controlled and Tested Under Hypothetical Worst Case Conditions.

Batch Group 1 Emission Standards

- Reduce Process-wide HAP emissions by $\geq 98\%$,
- Closed Vent System to a Flare,
- or ≤ 20 ppmv outlet from control device.
- Reduce process-wide HAPs by $\geq 95\%$ using Recovery Devices.
- Alternative Standard:
 - ≤ 20 ppmv Combustion Outlet or ≤ 50 ppmv Non-Combustion Outlet – REQUIRES CEMS.
- Remember that Table 3 requires $\geq 99\%$ Control of HF/HCl/Cl₂ if Uncontrolled (HF/HCl/Cl₂) Emissions $\geq 1,000$ lb/yr.

BATCH VENT OHAP THRESHOLDS – EXISTING SOURCES



Batch Vent Group 1 Limits

- Batch process vents: require sources to reduce uncontrolled organic HAP emissions from the sum of all batch process vents within the process by 98% if uncontrolled emissions exceed 4,540 kg/yr.
 - No control of vents is required for processes that are limited to uncontrolled emissions of 4,540 kg/yr or less, as calculated on a rolling 365-day basis.
- A second control option for batch vents is to reduce the sum of all batch process vents within the process by 95% using recovery devices.

BATCH VENT CONTINUOUS COMPLIANCE

- Comply with Operating Limits As Determined By Performance Demonstration.
- Maintain records of whether each batch is considered a "standard batch".
- Estimate Uncontrolled and Controlled Emissions From Non-Standard Batches.
- For Group 2 Batch Process Vents
 - <10,000 lb/yr process OHAP
 - <1,000 lb/yr process HF/HCl/Cl₂
 - 365-day rolling summations of emissions
 - Calculated at least monthly

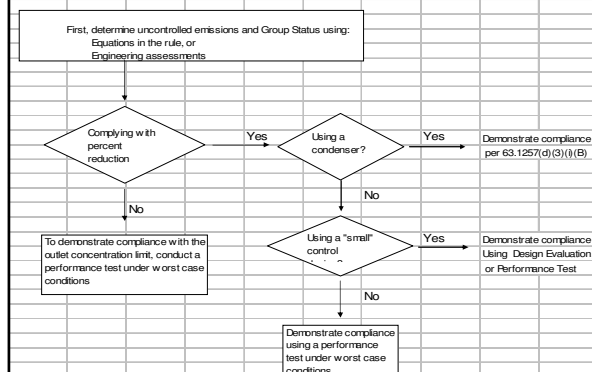
Batch Vent Performance Tests

- Initial compliance demonstration through:
 - Performance tests for control devices handling > 9.1 MG/yr (10 tpy) HAP (see Subpart GGG)
 - Performance tests or engineering assessments are allowed for control devices with lower loads and for condensers.
- Performance tests
 - Conduct no later than 150 days after compliance date
 - Site-specific test plan submitted with notification of performance test

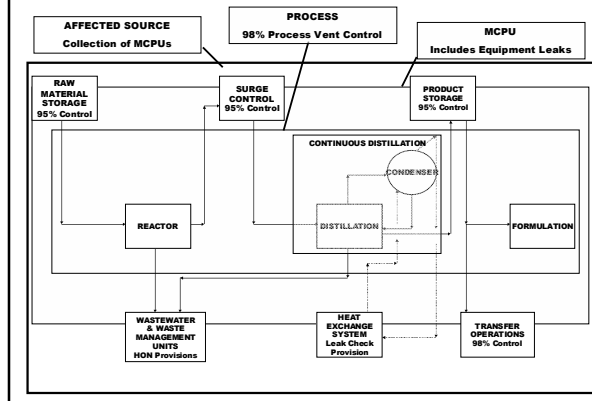
Batch Vents in a CMPU

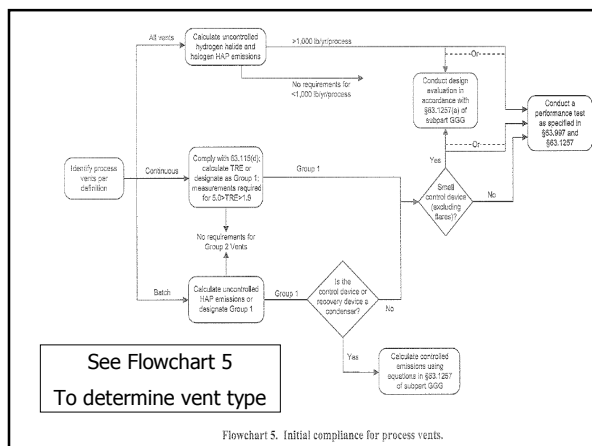
- For Batch Process Vents that are part of a CMPU subject to the HON
 - Comply with the MON Batch Vent: emission limits, work practice standards, compliance, monitoring, recordkeeping and reporting requirements.
 - Comply with Subparts F, G, H of the HON for the rest of the CMPU and associated equipment.

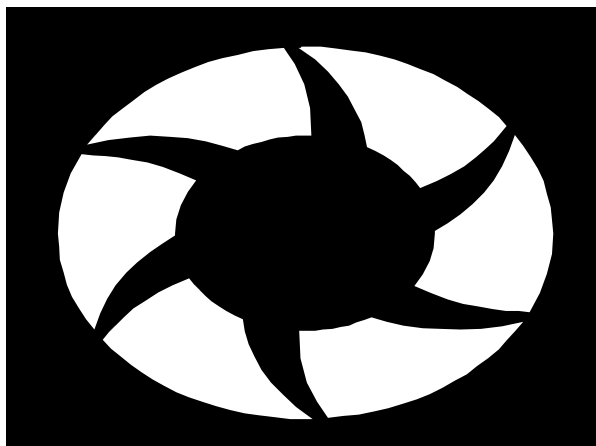
Requirements for Batch Process Vents



CONTINUOUS & BATCH OPERATIONS



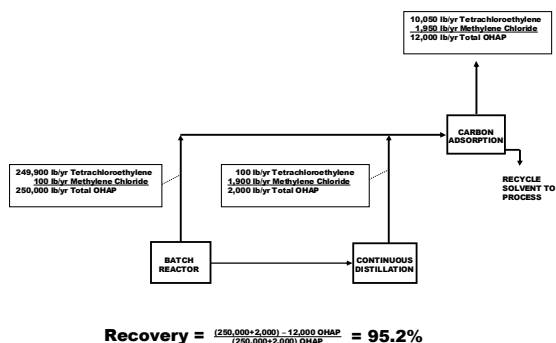


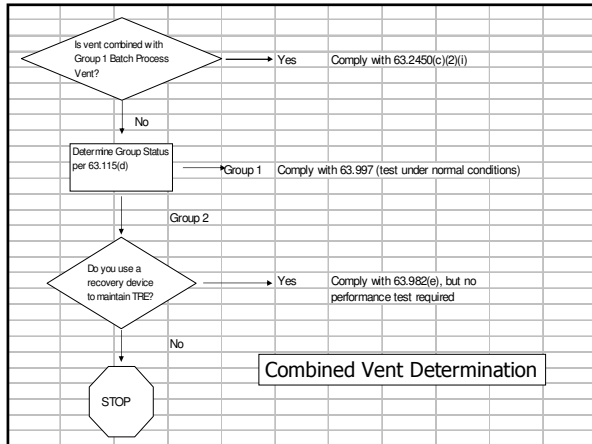


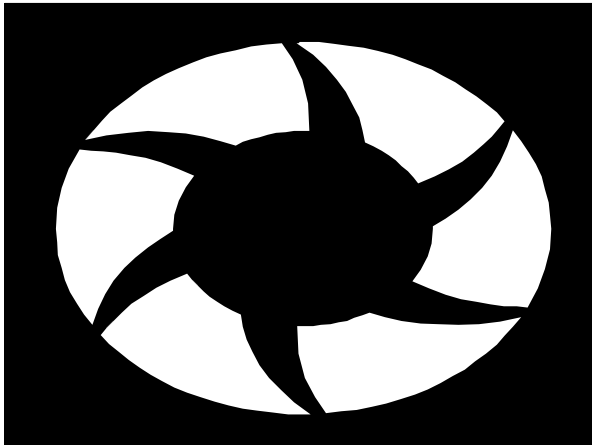
Continuous Process Vent

- Combined streams:
 - A separate determination is required for emissions from each MCPU, even if emission streams from two or more MCPU are combined prior to discharge to atmosphere or to a control device

COMBINED PROCESS VENT EXAMPLE







Group 1
Halogenated Continuous Vent Standards

- **Halogenated**
 - Perform only one calculation for
 - **Thermal Incinerator and Scrubber**
 - Then compare against the threshold
- **Table 1 (of the MON) for Group 1 Continuous Halogenated Vents**
 - Halogenated Group 1
 - Reduce halogens after combustion by 99 percent, to 20 ppmv, or 0.45 kg/hr
 - Reduce halogen atoms before combustion to 20 ppmv or 0.45 kg/hr

Halogenated Group 1 Batch and Continuous Vents

- See MON Table 1 (Continuous)
- Table 2 (Batch)
- **Halogenated**
 - Perform only one calculation for
 - **Thermal Incinerator and Scrubber**
 - Then compare against the threshold
 - Reduce halogens after combustion by 99 percent
 - Reduce halogen atoms before combustion to 20 ppmv or 0.45 kg/hr

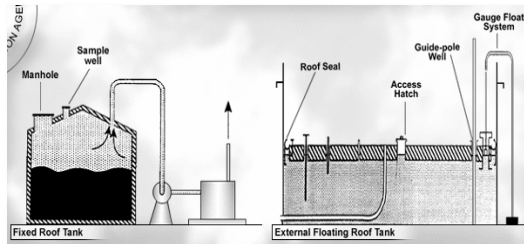
Emission Standards for Halogen HAP and Hydrogen Halide Emissions

- See Table 3 of the MON
- Uncontrolled hydrogen halide and halogen emissions $\geq 1,000$ lb/yr
 - MUST:
 - 99% reduction in emissions
 - 20 ppmv
 - Conduct design evaluation
 - OR
 - Conduct a performance test as specified in 63.997 and 63.1257
- New source with uncontrolled HAP metals emissions from process vents ≥ 150 lb/yr
 - 97% reduction by weight in overall HAP metal emission

Other Process Vents

- Calculate uncontrolled hydrogen halide and halogen HAP emission
- If $> 1,000$ lb/yr/process
 - Then:
 - Conduct design evaluation
 - OR
 - Conduct a performance test as specified in 63.997 and 63.1257

Storage Tank Provisions



Definition-Storage Tank

- Tank or vessel storing liquids that contain organic HAP, HCl, HF and/or Cl₂
- Associated MCPU must be subject to FFFF
- Doesn't Include:
 - Vessels permanently attached to motor vehicles
 - Pressure vessels designed to operate in excess of 204.9 kPa and without emissions to the atmosphere
 - Vessels storing organic liquids that contain HAP only as impurities
 - Wastewater storage tanks
 - Bottom receivers
 - Surge control vessels
 - Process tanks

Group 1 Storage Tank

- Controls required if:
 - Tanks at Existing Source
 - Capacity $\geq 10,000$ gallons, and
 - Partial vapor pressure ≥ 1.0 psia
 - Tanks at New or Reconstructed Source
 - Capacity 10,000 gallons, and
 - Partial vapor pressure ≥ 0.1 psia
- Group 2=no control

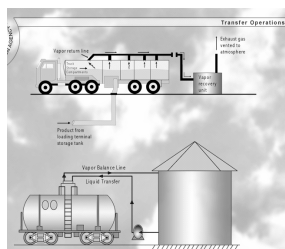
Control Options

- Choose one of the following options:
 - Floating roof (if < 11.1 psia)
 - Closed vent system and control device
 - Reduce HAP emissions by $\geq 95\%$ by weight or
 - Reduce organic HAP or TOC concentration to ≤ 20 ppmv and HCl, HF, Cl₂ concentration to ≤ 20 ppmv
 - Flare that complies with Subpart A
 - Vent to a fuel gas system or process
 - Vapor Balancing
 - Exempt control device (See rule)

Halogenated Vent Stream from Group 1 Storage Tank

- Comply with same requirements as halogenated process vents.

Transfer Operations Provisions



Definition-Transfer Rack

- Collection of loading arms and hoses
- Assigned to an MCPU
- Used to fill tank trucks and rail cars with organic liquids containing one or more organic HAP
- Includes pumps, meters, shutoff valves, relief valves, and other piping

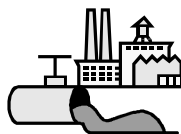
Group 1 Transfer Racks

- Control required if:
 - Loads ≥ 0.65 million liters/yr of liquids that contain organic HAP AND
 - Rack-weighted average partial pressure ≥ 1.5 psia
- Uses the throughput weighted average of the avg. maximum true vapor pressure of liquids containing organic HAP
- Group 2=no control

Group 1 Control Options

- Closed-vent system and control device:
 - Reduce HAP by $\geq 98\%$ weight
 - Reduce organic HAP or TOC to ≤ 20 ppmv and HCl, HF, Cl_2 to ≤ 20 ppmv
 - Use a flare complying Subpart A, or
 - Use an "exempt" control device
- Vent to a fuel gas system or process
- Vapor balancing system to route collected HAP vapors back to a storage tank
- If stream is halogenated, comply with same control as for vents

Wastewater Provisions



Wastewater

1. Process wastewater
2. Maintenance wastewater
3. Liquid streams in open systems
(ex. In-process wastewater)
4. Heat exchange systems

Definition-Wastewater

- Discarded from an MCPU or control device through a Point of Determination (POD)
- Is maintenance wastewater or process wastewater
- Contains either/or:

| Annual Avg. Concentration Of Table 8 and 9 Compounds | Annual Avg. Flow Rate |
|---|------------------------|
| ≥ 5 ppmw | ≥ 0.02 lpm (0.005 gpm) |
| OR | |
| ≥ 10,000 ppmw | ANY |

Initial Requirements for Wastewater Treatment

- Either a design evaluation or a performance test is required for nonbiological treatment processes and for closed biological treatment processes
- A performance test is required for open biological treatment processes
- Offsite Management and Treatment Certification
 - RCRA Treatment needs no certification
 - Table 9 HAP streams
 - Treat in compliance with HON requirements
- These treatment units are exempt from either performance tests or design evaluation;
 - ➔ RCRA waste management units
 - ➔ Enhanced biological treatment units
 - ➔ Design Steam Stripper

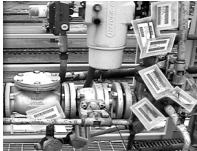
WASTEWATER STANDARDS

- Emission suppression (or management) required for waste management units:
 - Wastewater tanks
 - Surface impoundments
 - Containers
 - Individual drain systems
 - Oil-water separators

WASTEWATER STANDARDS

- Treatment options:
 - <50 ppmw (not allowed for biotreatment)
 - Design steam stripper
 - ≥99% removal
 - Percent removal equal to Fraction removed value
 - Required mass removal ≥95% for both Group 1 and Group 2 streams sent to biotreatment
- Biotreatment
 - For wastewater transferred offsite to biotreatment, less burdensome management requirements are an option (offsite only) if the wastewater contains ≤ 50 ppmw of partially soluble HAP

Equipment Leaks



Equipment Leaks

■ Applies to:

- Equipment that contains or contacts organic HAP
- In organic HAP service means concentration ≥ 5 wt% organic HAP
- Pumps, compressors, agitators, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, connectors, instrumentation systems, closed vent systems and control devices

Equipment Leaks

■ Applies to:

- Equipment that contains or contacts organic HAP
- "In organic HAP service" means concentration 5 wt% organic HAP
- Pumps, compressors, agitators, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, connectors, instrumentation systems, closed vent systems and control devices

■ For Batch and Continuous processes:

- Comply with H, UU or CAR

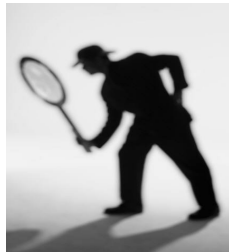
■ If have no continuous process vents:

- Can comply with WV or V for all equipment

Startup, Shutdown, Malfunction Plan (S/S/M Plan)

- Affected sources are required to develop and implement a written SSM plan
- See MON Table 12 and Subpart A: 63.6(e)
- Deadline within the MON compliance date
- Doesn't apply to Group 2 emission points or emission leaks.
- Immediate SSM reports not required
- Requires submittal of plan only on request by the Agency or public
 - Can allow onsite inspection instead of submittal
 - No specific timeframe for submittal states "promptly"

Compliance



Initial Compliance

- **Determine affected streams and group status**
 - Batch Vents (per §63.1257(D)(2)(i) & (ii))
 - Continuous Vents (per §63.115(d))
 - Halogenated Vents (per §63.115(d)(2)(v))
- **Conduct design evaluation** (small devices or any size hydrogen halide or halogen HAP device) or **performance test** (large devices)
- **Demonstration**
 - Worst-case conditions for process vents
 - Representative conditions for wastewater treatment units and vent control devices
 - Establish monitoring parameter levels

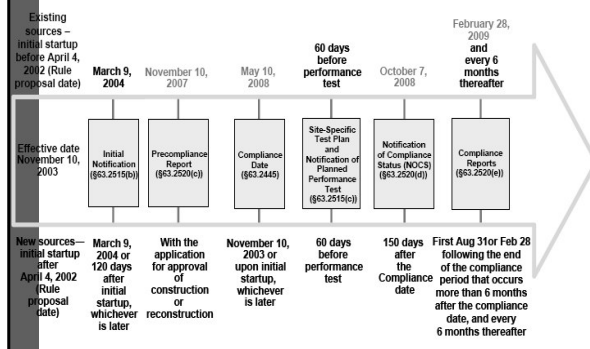
Initial Compliance Continued..

- Typically, calculate uncontrolled emissions from each process vent (batch only)
- Initial inspections for emissions suppression devices (e.g., covers, roofs, closed-vent systems)
- For condensers, may use provisions of 63.1257(d)(3)(i)(B)
- For P2, calculate and demonstrate target annual HAP and VOC factors (35% of baseline level)
- For Emissions Averaging, demonstrate debits and credits under representative operating conditions

Ongoing Compliance

- Leak inspection requirements for vapor suppression equipment as in HON
 - Semi-annual visual inspections
 - Annual visual inspections or inspection using Method 21 for closed-vent systems
 - Leak is detected if reading is >500 ppmv
- Monitoring for treatment units as in HON
 - Monitor TSS, BOD, and biomass concentration for biotreatment units. Permitting authority approves the monitoring frequency
 - Use Precompliance report to request approval to monitor appropriate parameters for nonbiological treatment units

Compliance Timeline



Reports and Notifications

- Initial notification-Due 3/9/04
- Precompliance report-Due 11/10/07
- Notification of intent to conduct performance test-Due 60 days prior to test
- Notification Of Compliance Status (NOCS) Report-Due 11-7-08
- Compliance reports-
 - Due every 6 months (on Aug. 31 and Feb. 28)
 - (takes 2 months to prepare)
- Miscellaneous reports from General Provisions
 - Notification of performance test (and test plan)
 - Notification of CEMS performance evaluation
 - Request for extension of compliance
 - Application for approval of construction or reconstruction

Recordkeeping Summary

- Records specified by referenced subparts (F,G,SS,UU,WW,GGG)
- Startup, shutdown, and malfunction plan
- Operating Scenarios – Descriptions and logs
- Batch processing – which batches, when, how much processed, emissions (etc)
- CEMS operation information (when operating, calibrations, deviations (etc)
- PUG – Descriptions and calculations

- Most compliance requirements are specified by cross-referencing other rules

| Emission Point/Equipment | Referenced Subparts |
|--|---------------------|
| Continuous process vents | G and SS |
| Batch process vents | SS and GGG |
| Storage tanks | WW and SS and GGG |
| Equipment leaks | TT and UU |
| Process wastewater | G |
| Maintenance wastewater and heat exchange systems | F |
| Transfer operations | SS |

Overlapping rules

- MON has alternative compliance
 - Tanks - 40 CFR part 60 subparts Kb and Y
 - Vents – subparts DDD, III, NNN, and RRR
 - Racks – part 61 subpart BB
 - Equipment leaks
 - part 60 subpart VV
 - part 61 subpart V
 - Wastewater
 - part 63 subparts GGG and MMM
 - part 61 subpart FF

MON Resources

- EPA Air Toxics Website:
<http://www.epa.gov/ttn/atw/mactfnlalph.html>
- University of Tennessee Air Toxics Website
<http://www.epamact.tennessee.edu/default.shtml>
- Electronic CFR (electronic copy of the rule)
<http://ecfr.gpoaccess.gov/cgi/t/text/textidx?c=ecfr&tpl=%2Findex.tpl>
- MACT Coordinator for specific questions

Questions?